



GRETCHEN WHITMER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
LANSING



DANIEL EICHINGER
ACTING DIRECTOR

April 17, 2023

VIA EMAIL and U.S. MAIL

Jim Saric
Remedial Project Manager
United States Environmental Protection Agency
Region 5
77 West Jackson Boulevard (S-6J)
Chicago, Illinois 60604-3511

Dear Jim Saric:

SUBJECT: Michigan Department of Environment, Great Lakes, and Energy (EGLE) comments on the Area 2 Pre-Design Investigation (PDI) Work Plan: Phase 2 (Phase 2 FSP), submitted March 15, 2023, Operable Unit 5 (OU5), Allied Paper Inc./Portage Creek/Kalamazoo River Superfund Site (Site).

By way of this correspondence, EGLE formally submits this cover letter and detailed comments (attached) on the subject PDI Phase 2 FSP for Area 2 for inclusion in the Administrative Record for the Site.

EGLE has a significant number of comments related to the development of data quality objectives (DQOs) in the Phase 2 FSP, and concerns that the PDI may not be sufficient to support development of a remedial design and implementation of the remedy.

EGLE appreciates the opportunity to review and comment on the subject work plan for OU5. If you have any questions, please contact Daniel Peabody, Environmental Quality Analyst, Remediation and Redevelopment Division at 517-285-3924; PeabodyD@Michigan.gov; or EGLE, P.O. Box 30426, Lansing, Michigan 48909-7926

Sincerely,

Daniel Peabody
Environmental Quality Analyst
Superfund Section
Remediation and Redevelopment Division

cc/att:

Greg Baker, National Oceanic and Atmospheric Administration

Dr. Keegan Roberts, CDM Smith

Lisa Williams, United States Fish and Wildlife Service

Matt Diana, MDNR

Brian Gunderman, MDNR

Mark Mills, MDNR

David Kline, EGLE

Joseph Walczak, EGLE

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GENERAL COMMENTS

Commenting Organization: EGLE

Commenter:

General Comment #1: The OU5 Area 2 Tentative Field Work Schedule provided via email on 4/10/23 includes sediment poling, which is scheduled to begin in early May. Section 3.5 in the Phase 2 FSP provides some background about the proposed poling effort, including adjustments that are proposed to the poling locations to focus less on the upper anabranches and more on the proposed re-alignment area.

When looking at the proposed channel realignment area relative to where the current channel sits and examining maps showing the pre-dam channel alignment from 1873 and 1895, it becomes apparent that portions of the realigned channel will be in locations that are currently and have historically been floodplain, and other in other instances the realigned channel will overlap with the current channel alignment and/or the pre-dam channel alignment.

Is poling now being completed in the floodplains? If so, what information does that provide?

Tying elevations across these features to construct and realign channel represents a significant challenge for the designers. Characterizing the chemical and physical nature of the substrate will be critical for the implementation of a successful project and EGLE expects that significant data collection efforts will be needed to support construction and realignment of the channel. However, it is not clear that poling (depth of refusal) data will be sufficient to support the design since it does not provide any information on the nature and extent of contamination or the physical properties (e.g., grain size) of the material. Additionally, the benefit of poling in the floodplain is not understood. Revise the Phase 2 FSP to include a data quality objective (DQO) for poling.

EGLE previously submitted comments on the Area 2 Poling and Focused Field Investigation highlighting differences in poling (depth of refusal) measurements used to interpret the depth (elevation) to the pre-dam river channel and the depth (elevation) to the pre-dam surface that was identified in lithologic logs from proximal sediment cores that appeared to tag and penetrate the pre-dam surface. The difference in the measured elevation of the alluvial surface between the two methods was greater than 1 foot at most locations (13/20) and ranged from less than 0.10 feet (ft.) to 6.0-ft.

Given the uncertainty of poling (depth of refusal) measurements to accurately define the depth (elevation) of the pre-dam alluvium and the need for dependable data to support the remedial design (RD), the design team should revise the Phase 2 FSP to include a sufficient number of sediment cores in river channel for the specific purpose of characterizing the chemical and physical nature of the soil/sediment column. This will be necessary to support development of a sediment management plan for dam removal and provide information needed to support the construction/realignment of the river channel. Revise the document accordingly.

Commenting Organization: EGLE

Commenter:

General Comment #2: It is not clear if the single DQO in the Phase 2 FSP will generate enough information to develop a RD and implement the remedy.

The Phase 2 FSP is primarily focused on delineating the total PCB footprints above thresholds of interest, with the exception of a few locations where geotechnical sampling is proposed. According

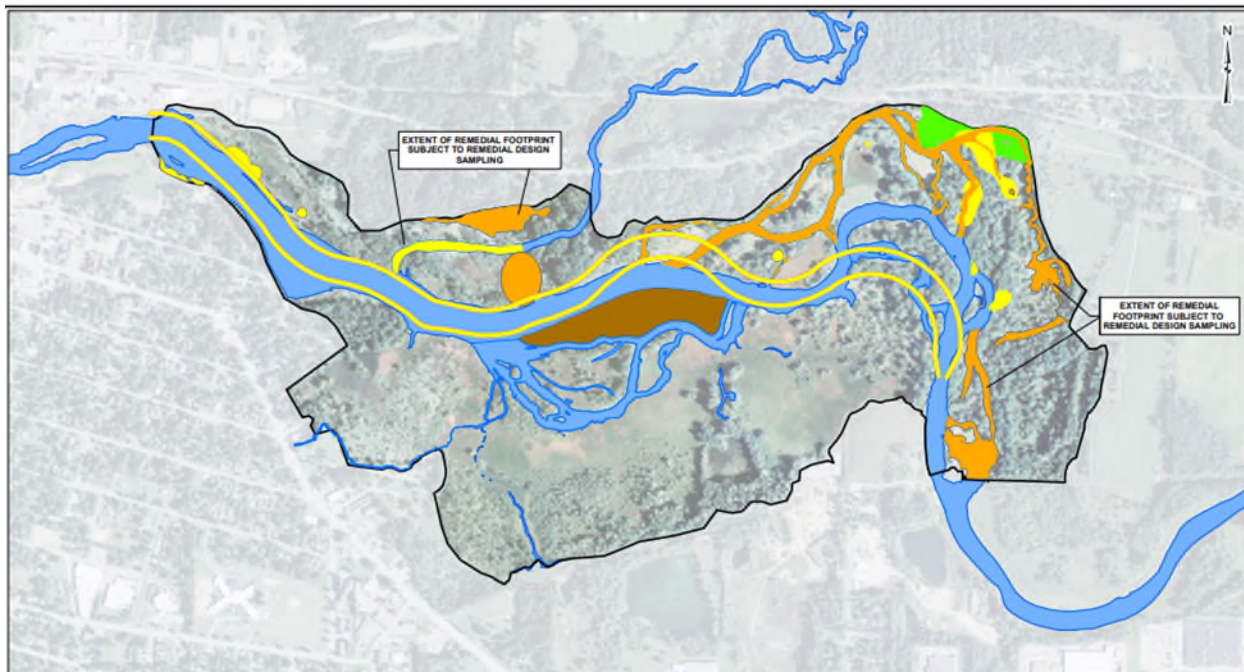
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to text in the Phase 2 FSP, the DQO for defining the PCB remedial footprint was developed to mirror requirements of the selected remedy, which includes excavation of floodplain soil with PCB concentrations greater than 50 mg/kg and 20 mg/kg, addressing privately owned property with PCB concentrations greater than 2.5 mg/kg, and excavating sediment from the Gun River to achieve a PCB SWAC of 0.33 mg/kg.

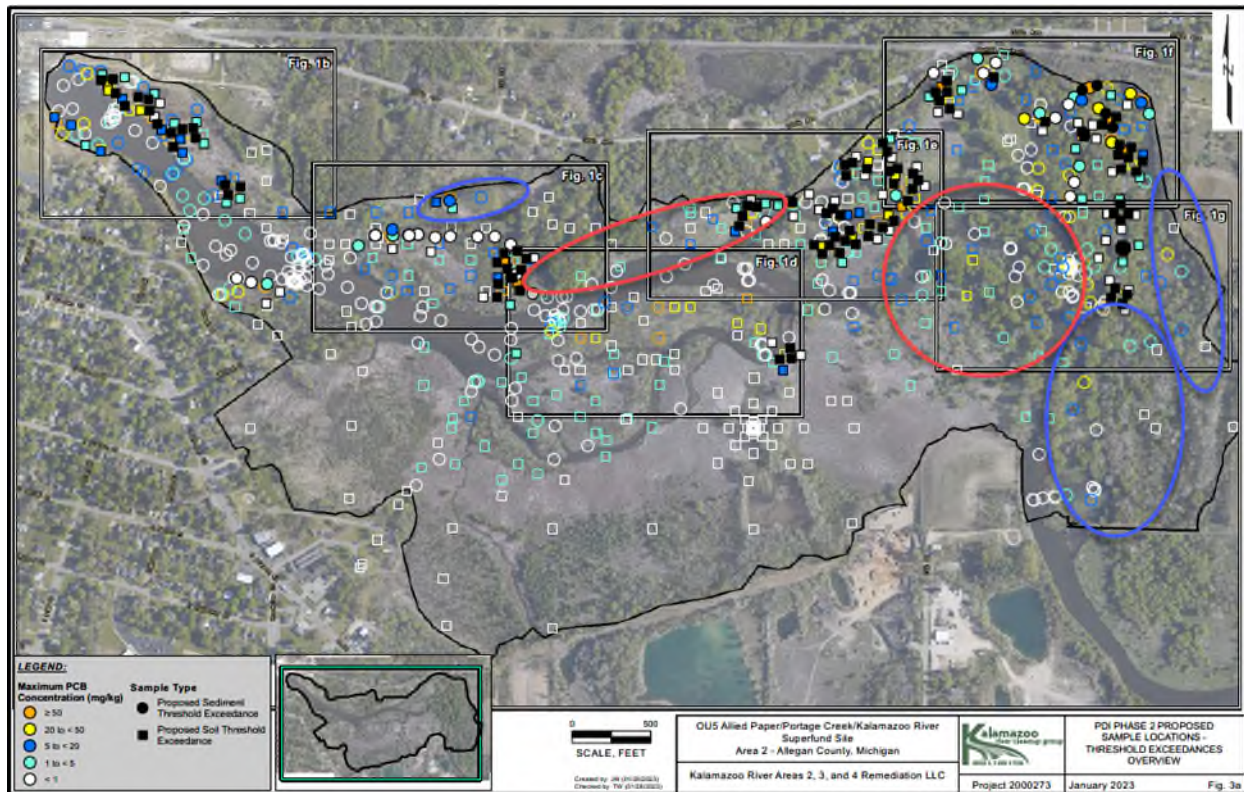
However, the selected remedy includes significantly more elements than excavation of contaminated materials, including dam removal, bank excavation for PCBs to a RAL of 5 mg/kg, channel realignment with delineation/disposal of PCBs above the PRG within the realignment footprint, the beneficial reuse of “clean” material excavated during construction of the realigned channel for use as fill, etc.

The number of cores and the core density proposed for the PDI is fairly low, especially when compared to estimates in the Area 2 Feasibility Study (FS). Cost estimates for the selected remedy (Alternative A5 with Channel Realignment Option 3) in the FS assumed that 500 cores would be collected during the PDI to support the RD, which would be similar to the combined efforts of the pre-SRI (approximately 369 cores) and SRI (approximately 338 cores) sampling. However, the total number of core locations proposed for the Area 2 PDI may be less than half of the projection in the FS, and the PDI will be smaller in scope than the pre-SRI and SRI sampling events.

The spatial extent of the PDI also appears to be incomplete for what would be needed to support the development of a RD and implement the remedy. Locations identified in the Record Of Decision (ROD) for sampling during the RD such as the area downstream of the former Plainwell dam, and Pond G appear to have not been included as part of the PDI (circled in purple). The PDI also does not appear to include any samples in locations where the new river channel will be constructed, including the floodplain to the north of Knife Blade Island, and the southern floodplain located just downstream of the former Plainwell dam (circled in red). There is also no sediment sampling proposed for the main river channel, including those portions that overlap with the future channel alignment.



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If there are plans to conduct additional sampling to support the RD after Phase 2 is completed, indicate what additional information needs to be collected and when that work will be done. An incomplete PDI may hamper development of a preliminary (30 Percent) RD.

If there are no plans to conduct additional sampling after Phase 2 is completed, revise the Phase 2 FSP so that it includes DQOs to address the remaining data gaps. A technical work group meeting to discuss the remaining data gaps and develop DQOs may be necessary/beneficial to ensure that the pre-design investigation is sufficient to support the RD. Revise the document accordingly.

Commenting Organization: EGLE

Commenter:

General Comment #3: The Phase 2 FSP is heavily focused on delineating PCB remedial footprints, however; as presented it is difficult to tell if the sample plan will adequately define the extent of total PCBs greater than 5 milligrams-per-kilogram (mg/kg) along the realigned channel, which is an element of the selected remedy. It would be helpful if the figures showing PCB sample results and proposed sample locations (Figures 3a-3g, and 4) included the proposed channel alignment. It would also be helpful if the figure sets utilized different symbols for samples collected before and during the PDI.

The Phase 2 FSP only discusses collecting bank soil samples in the Gun River and bank soil sampling along the realigned channel is limited to geotechnical sampling, but no details of the geotechnical sampling are provided in the Phase 2 FSP.

Revise the Phase 2 FSP figures to show the proposed channel alignment. Revise the figure sets so that it is clear when samples shown were collected (i.e., pre-SRI, SRI, and PDI). Revise the Phase 2 FSP to include robust sampling of the banks along the realigned channel at a density sufficient to support the development of the RD. For reference, the Area 2 FS assumed that confirmation

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sampling would be collected across an area that is 1,000 square feet (50-ft. x 20-ft.) in size. Revise the FSP to include a DQO for geotechnical sampling and provide additional details on the planned geotechnical sampling in the text.

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SPECIFIC COMMENTS

Commenting Organization: EGLE

Commenter:

Section: 2.0

Page #: 4

Lines #:

Specific Comment #1: The text references Pond G, a 2.6-acre pond north of Gun River. The remedy in the ROD for Pond G is capping and Pond G was specifically identified in the ROD as an area that would be subject to sampling during the PDI. Has Pond G been sampled? Update the text to clarify whether or not Pond G has been sampled. If Pond G has not been sampled, revise the document to include sampling in and around Pond G.

Commenting Organization: EGLE

Commenter:

Section: 2.2

Page #: 5

Lines #:

Specific Comment #2: The text in the first paragraph notes the presence of PCB contamination in Area 2, and states that PCBs are the primary constituent of concern for Area 2 and potential exposure to PCBs drives risk at the site.

These statements may not be accurate. For Area 2, PCB still dominates the non-cancer risks, but dioxin cancer risks are about two times higher than those found from PCBs (<https://semspub.epa.gov/work/05/934401.pdf>). The available TEQ data for Area 2 and across OU5 is generally old, sparse, and incomplete (often lacking the dioxin-like PCB component), and as a result the risks posed by TEQ in Area 2 are not well understood. The PDI and confirmation sampling programs should include sampling for all constituents of concern (total PCBs and total TEQ). Revise the document accordingly.

Commenting Organization: EGLE

Commenter:

Section: 2.2

Page #: 5

Lines #:

Specific Comment #3: The last paragraph in Section 2.2.1 states, "The overall PDI sampling approach assumes the historical soil data are usable and will be incorporated into the design basis. In the case of sediment, due to changes in bathymetry since prior sampling, the depth intervals and – to a lesser extent – spatial location of previous results may no longer be accurate. Historic data points may be classified unusable if a review determines them to be inapplicable due to erosion or changes in bathymetry since initial sampling." If the data are no longer representative of site conditions, then full-scale sediment sampling will be necessary. The PDI has not included any sediment sampling and there are several sediment samples that exceed applicable thresholds. The lack of adequate sediment characterization is a critical data gap that will need to be addressed before the remedy can be implemented.

Commenting Organization: EGLE

Commenter:

Section: 2.2.3

Page #: 7

Lines #:

Specific Comment #4: The text states: "The extent of PCBs detected >50 mg/kg in soil or sediment and >20 mg/kg in floodplain soil has generally been delineated, as presented in Figs. 3a through 3g. Additional sampling is proposed to further refine the horizontal extent of PCBs to support design analysis.", as well as discussing other contaminant delineation-type activities. For example, Section 2.3.5.6 states that anticipated data evaluations will include:

- Verify and evaluate the vertical and horizontal extent of total PCB impacts in sediment and floodplain/upland soil.
- Delineate areas and volumes of soil and sediment requiring remedial actions.

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Despite a.) delineating vertical extent and b.) calculating remedial action volumes being goals of this work plan, Section 2.3.4 arbitrarily limits core depths to 6-ft. Section 2.3.4 states that cores will have a maximum depth of 6 ft in soils and the anabranches, and 10 ft in Gun River sediments (although Section 3.2.1 states: “Four additional sediment cores (Fig. 4) will be advanced to alluvium (or refusal).”).

Any site investigation should fully delineate both the horizontal and vertical extent of contamination. Unidentified contaminant inventory has been found during PDI/confirmation sampling events (i.e., Area 1 remediation and Area 4 TCRA removal) at lower depth intervals than were previously defined in the respective RIs. This is due in large part to RI coring activities being depth-limited for various reasons. Revise the workplan accordingly to sample to refusal or alluvium (and not an arbitrary depth), particularly in sediments or in areas of the proposed new bank alignments.

Commenting Organization: EGLE

Commenter:

Section: 2.2.3

Page #: 7

Lines #:

Specific Comment #5: The text states: “Additional sampling is needed to evaluate the presence of PCBs above the 2.5 mg/kg residential FRG on private-land parcels (Section 3.4).” Furthermore, Section 3.4 discuss PCB-only sampling for residential properties. Sampling of private property in other Areas of OU5 has shown that PCBs and TEQs may not be co-located at concentrations at or near risk-based clean-up levels for residential properties. Private parcels should be evaluated for total TEQ, in addition to total PCBs. Revise the workplan accordingly.

Commenting Organization: EGLE

Commenter:

Section: 2.2.3

Page #: 7

Lines #:

Specific Comment #6: The text states: “Additional sampling may be required in areas where higher uncertainty regarding PCB concentrations is identified or as needed based on “moving window” analysis following completion of the PDI Phase 1 and 2 datasets.” Revise the document to clarify/quantify what is meant by “higher uncertainty”. Such a term is vague and should not be used when discussing PDI or RA type activities.

Commenting Organization: EGLE

Commenter:

Section: 2.3.2

Page #: 8

Lines #:

Specific Comment #7: The text states: “Perform additional sampling to refine the footprint of PCB-impacted soil and sediment >50 mg/kg and floodplain soil >20 mg/kg, based on historical data (if applicable) and the PDI Phase 1 results to limit the areas requiring remedial action.” Any limitations on historical data use need to be in coordination with all project partners, with a final decision resting with EPA. EGLE would not support the deletion or select use of “historic” data without an appropriate reason to do so, and if data is determined to no longer be representative then new data will need to be collected. Revise the text to clearly state than any potential limitations of historical data use will be discussed in detail with EPA and EGLE, with EPA making the final decision and providing supporting rationale on whether historical data sets are included or excluded from further use.

Commenting Organization: EGLE

Commenter:

Section: 2.3.5.1

Page #: 10

Lines #:

Specific Comment #8: The text states: “The number and depths of samples initially submitted for PCB analysis will depend on the PDI objective for each sampling location as stated in Tables 1 and

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2." The entirety of the core should be analyzed, given sediment transport regime present at the site and the high potential for layered PCB deposits. Revise the document accordingly.

Commenting Organization: EGLE

Commenter:

Section: 2.3.5.1

Page #: 10

Lines #:

Specific Comment #9: The text states: "Geotechnical samples (i.e., particle size distribution, soil strength data, etc.) may also be collected in support of the remedial design." Revise the document to definitively identify what would trigger Geotech sample collection and analyses. Ambiguity in a PDI work plan should be avoided.

Commenting Organization: EGLE

Commenter:

Section: 3.1

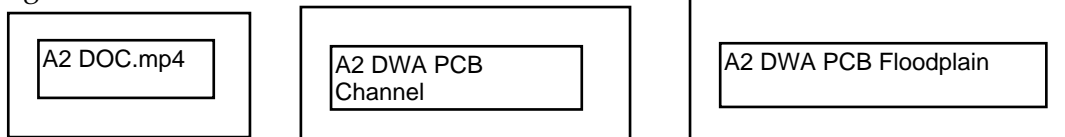
Page #: 13

Lines #:

Specific Comment #10: The text states: "Phase 1 PDI sampling included up to four "range finding" cores collected approximately 100 feet from locations with RAL exceedances." The text also states: "PDI Phase 2 threshold sampling is designed to refine the limits of PCBs in floodplain soil exceeding the RAL (20 mg/kg) to reduce the remedial footprint, as appropriate, and refine the limits of soil and sediment >50 mg/kg requiring alternate handling and disposal procedures."

The goal of the PDI is not to reduce the remedial footprint. Once the PDI is completed, there should be sufficient information to develop a RD to implement the ROD and complete the remedial action.

However, EGLE does agree that the way in which the PDI has been designed will only result the anticipated remedial footprints shrinking in size. That is because the PDI has selectively reoccupied discrete locations that exceed the anticipated RAL instead of casting a broader net to cover areas that are sparsely sampled and/or where elevated concentrations of PCBs were detected but at levels below the RAL. The reoccupation of discrete exceedances does not account for the variability in sample concentrations or acknowledge the degree of uncertainty that exists in the remedial footprints that were generated at the time of the FS. Video clips showing 100 equally likely surfaces for the depth of contamination (DOC), and the depth weighted average (DWA) PCB concentrations for the floodplain and realigned channel are embedded in this PDF and they can be accessed by clicking the boxes below.



Commenting Organization: EGLE

Commenter:

Section: 4.6

Page #: 20

Lines #:

Specific Comment #11: The text states: "The DQO for the portion of the residential property located within the boundary of Area 2 is to evaluate compliance with the FRG of 2.5 mg/kg PCB. The portion of the residential property within the Site boundaries is approximately 4 acres, bisected by one of the anabranches. The area is not maintained or routinely used by the residential property owner, unlike areas outside of the Area 2 boundary, which are maintained as a residential yard. Based on the topography and land use of the area, a single DU will be established to include the entire portion of the residential property located within the Area 2 boundary (Fig. 6). Sampling of the DU will include the floodplain and upland areas only because sediment within the anabranches will either be filled in or excavated and capped as part of the Area 2 remedy."

When looking at the DU that is outlined in Figure 6 and comparing it to the threshold exceedances

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for the northern anabranches that are shown in Figure 3f and the ISM Sampling Grids shown in Figure 8, it becomes apparent that the DU crosses locations where discrete samples have already been collected and those samples fall within the proposed sampling grids. These samples range in concentration from <1 mg/kg to >50 mg/kg. It is expected that once the dam is removed this area will be separated from the main channel under normal flow conditions, which may fundamentally change the potential future uses of the property.

Have future conditions under a dam-out scenario been explained to the owner so that the owner is aware what is planned for the property? Have potential future uses for these areas been considered in development of the sampling plan for private property? How will discrete samples in these DUs be considered and integrated with the ISM samples?

Portions of the DU appear to be located within the excavation footprint prescribed in the ROD, while other portions of the DU appear to be located within the area where capping is the selected remedy. How will sample results from the single DU be used to inform the excavation and capping that is prescribed in the ROD?

The ISM approach that is laid out cites the MDEQ (EGLE) ISM guidance document, but what is proposed is the Phase 2 FSP is inconsistent with what is prescribed in the ISM guidance document and previous ISM sampling plans developed for OU5.

Per EGLE ISM Guidance, 30 increments and 1 kilogram (kg) of sample mass is the bare minimum and significantly more increments (up to 100) and sample mass (>2 kg) may be required in highly heterogeneous areas. EGLE ISM guidance recommends using ¼-acre to 1-acre DU for a residential exposure area and requires the use of a random systematic sampling grid with increments collected from each grid node. The EGLE ISM guidance document also discusses processing techniques for ISM samples and recommends sample processing be done in laboratory and cautions against initiating processing procedures in the field since doing so can introduce sampling error. Section 7.7 of the ISM guidance discusses field processing and subsampling for certain contaminants (including PCBs) and states, *"Some contaminants (including SVOCs, PCBs, pesticides, herbicides, phenols, energetics, and certain metals (Arsenic, Mercury, and Lead)) may require special laboratory and IS field processing and subsampling methods to avoid sample contaminant loss and promote sample representativeness. The DQO process should evaluate field collection procedures and laboratory subsampling methods for all contaminants of concern. Advance consultation with the selected laboratory is essential for the DQO planning process."*

Previous ISM plans for residential properties collected 49 increments using a systematic sampling approach and a 1-inch push probe from a DU that was a ¼-acre in size. Increments from two sample intervals (0-6" and 6-12") were collected at each grid node. Increments were placed in a container and homogenized, and then sent to a laboratory for processing and subsampling. DUs for commercial and recreational parcels were sampled using the same equipment, number of increments, and sample intervals, but DUs were slightly larger (a ½-acre in size). This resulted in a grid spacing of approximately 15 to 20-ft. for residential and commercial/recreational parcels and ensured that a total mass of approximately 3.5 kg was collected from each exposure interval (0-6" and 6-12") at all parcels.

The Phase 2 FSP proposes collecting one increment from each sample interval (0-6" and 6-12") that is randomly distributed within a grid cell that is approximately a ¼-acre in size (100-ft. by 100-ft.), and there are a total of 31 grid cells that make up a single DU for the residential property that is

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approximately 4-acres in size. Text in Section 4.6 indicates that sample processing will begin in the field and will include drying [if needed], disaggregation, sieving, and subsampling prior to analysis by the laboratory. The Phase 2 FSP does not provide information on the equipment that will be used for ISM sampling, so sample mass estimates for the proposed approach can only be approximated. Assuming that increments are collected with a 1-inch push probe (similar to previous work) the collection of 30 increments would produce a sample mass of 1.2 kg. If the random sampling approach was abandoned and a systematic grid with 30 increments was applied to the 4-acre DU, the grid spacing would be approximately 76-ft.

Significant adjustments to the Phase 2 FSP for the residential sampling are needed. Revise the Phase 2 FSP to include a DQO for sampling on private residential property. A technical work group meeting to discuss the remaining data gaps and develop DQOs may be necessary/beneficial to ensure that the pre-design investigation is sufficient to support the RD.

Section: 5

Page #: 2 3

Lines #:

Specific Comment #12: The text states: "Following validation (Multi-Area QAPP Worksheets #34, #35, and #36) and data usability review (Multi-Area QAPP Worksheet #37), a determination will be made if the PDI Phase 2 data are adequate to support the remedial design." Clarify that EPA will make the determination of the adequacy of data.

Section: 5.1

Page #: 2 3

Lines #:

Specific Comment #13: The text states: "The extent of sediment areas and depths requiring remedial action will be estimated using appropriate geostatistical approaches for the sample set, which may include natural neighbor analysis, inverse-distance weighted analysis, natural kriging, or other approaches." Clarify that EPA will determine the appropriate geostatistical approach for any and all aspects of this work plan.

Section: Table 1

Page #: N A

Lines #:

Specific Comment #14: Table 1 includes a column for Geomorphic Area/Location, but there are no figures showing the various geomorphic areas in Area 2. Insert a figure showing the geomorphic areas in Area 2.